

24 Aug 1992

MU2HV-B  
MULTIMETER, DIGITAL

**1. GENERAL.** This procurement requires a digital, handheld, ruggedized multimeter with a high-voltage probe.

**2. CLASSIFICATION.** Type II, Class 2, Style A, and Color V in accordance with MIL-T-28800 with the following exceptions:

- a. The operating temperature range is reduced to -15°C to 55°C.
- b. The handle requirement is not invoked.
- c. The equipment may be provided in a coverless Style A enclosure but contained in a Style P transit case.

**3. MEASUREMENT CAPABILITIES.** The equipment shall have a 3-1/2 digit display supplemented with a bar-graph type peaking and nulling display and be capable of measuring resistance, voltage, and current within the minimum ranges and accuracies specified below. The equipment shall be average responding and rms indicating.

**3.1 Voltage measurement.** Range: 200 mV to 1,000V full scale. Resolution: 0.1% of range. Accuracy: See table I.

TABLE I. Accuracies (20 to 30°C)

Function	Range	* Accuracies $\pm$ (% of Input + No. of Counts)
DC Volts	All	0.1 + 1
AC Volts		
50 Hz to 2 kHz	All	0.5 + 3
2 kHz to 20 kHz	All	4.0 + 10
20 kHz to 70 kHz	200 mV to 20V	6.0 + 10
Ohms	200 ohms to 1 megohm	0.2 + 1
	1 megohm to 10 megohms	1.0 + 1
DC Current	All	0.8 + 2
AC Current		
40 Hz to 1 kHz	All	1.5 + 2
*After a response time of 4 seconds for ac, 2 seconds for dc, and 10 seconds for ohms.		

**3.1.1 Noise rejection.** DC: Common mode: 100 dB at dc, 50, and 60 Hz with a 1 kilohm unbalanced input. Normal mode: 60 dB at 50 and 60 Hz.

**3.2 Resistance measurement.** Range: 1 kilohm to 10 megohms full scale. Resolution: 0.1% of range. Accuracy: See table I.

**3.3 Current measurement.** Range: 400 uA to 2A full scale. Resolution: 0.1% of range. Accuracy: See table I.

**3.4 Temperature coefficient.** All functions:  $\pm(0.1 \times \text{the specified accuracy} / ^\circ\text{C})$ .

**3.5 Maximum input.** AC: 500 Vdc or 1 kVrms. DC: 1 kV (dc + peak ac). Ohms: 130 Vrms on 1 kilohm range and below.

**3.6 Inputs.** The equipment shall have at least two female banana input terminals. The low terminal shall be capable of withstanding voltage potentials of 500 Vdc above or below ground potential. If the instrument operates from nominal and alternate dc power, a third female banana input terminal for ground connection shall be provided.

**3.6.1 Input impedance.** AC volts: 1 megohm shunted by 200 pF nominal. DC volts: 10 megohms nominal.

**3.7 Display.** The following indicators are required: Input overload, battery state, and polarity.

**3.8 High voltage probe.** A dc high voltage probe shall be provided to extend the dc voltage measuring capability to 40 kV. The combined accuracy shall be within  $\pm 2\%$  of reading.

#### **4. GENERAL REQUIREMENTS.**

**4.1 Power source.** MIL-T-28800 dc internal power source requirements are invoked. The batteries shall be of a commercially available type and provide 12 months of operation before replacement. The nominal power source requirements are not invoked.

**4.2 Weight.** 1.4 kg (3.1 lb) maximum.

**4.3 Dimensions.** The multimeter shall be 56 mm (2.2 in) high, 95 mm (3.75 in) wide, and 203 mm (8 in) deep, nominal.

**4.4 Lithium batteries.** Per MIL-T-28800, lithium batteries are prohibited without prior authorization. Requests for approving the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

**4.5 Accessories.** The equipment shall be provided with safety-designed test leads in accordance with MIL-T-28800.